

16. A chemiluminescent lighting element of claim 15 further comprising said nonwoven material in the form of a felt, said felt constructed of a polymeric material.

17. A chemiluminescent lighting element of claim 1 further comprising a hard particle located in said other chamber for piercing said metal foil.

18. A chemiluminescent lighting element of claim 17 further comprising said hard particle being a steel ball.

19. A chemiluminescent lighting element of claim 1 further comprising a soft polymer layer in said metal pouch.

Remarks

The title has been amended to reflect Examiner's suggestion. Corrected informal drawings are submitted herewith for the Examiner's approval. An Abstract has been added. The specification has been amended to idiomatic English. Dependent claims 13 - 19 have been added. Claims 1 and 13 -19 remain in the application. Reconsideration of this application and the amendments is requested.

Rejections under 35 USC 103

Claim 1 stands rejected as obvious in view of Cameron. As stated by the Examiner, the reference does not teach the use of a metal foil for the inner pouch. Further, claim 1 has been amended to include the reflector function of the metal foil which is nowhere taught in the prior art. The other references cited by the Examiner do not describe such a foil with the reflective function. In at least one of the references, an aluminum foil is on the outside and this would obstruct the emission of the chemiluminescent light.

In any event, the prior art offers no suggestion for reflecting the chemiluminescent light, as now claimed. Therefore, the prior art cannot teach one of ordinary skill to make or use a device as claimed. The only teaching is the applicant's own disclosure which cannot be used against him. The test for obviousness is made at the time of the invention not after reading the inventor's disclosure and applying 20/20 hindsight..

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Clean Version of Each Replacement Paragraph/Section/Claim and Instructions for Entry

In the Specification

At page 1, the paragraph beginning at line 1, amend as follows- -

Devices able to emit light by the mixing of two liquid chemicals are well known. The following U. S. patents may be cited: U. S. Patent No. 3,539,794, U. S. Patent No. 3,576,987, U. S. Patent No. 4,193,109, U. S. Patent No. 4,682,544, U. S. Patent No. 4,751,616, U. S. Patent No. 4,814,949 and U. S. Patent No. 5,121,302.- -

At page 1, the paragraph beginning at line 5, amend as follows: - -

Generally speaking, the proposed devices involve two chambers, respectively containing a first liquid chemical, named oxalate solution, and a second one , named activator solution. These two chambers are separated by a wall which can be broken by the user, or has a removable part. The wall should also be a good barrier against gases because the oxalate solution is sensitive to any contamination originating either from outside or from the activator. Therefore, in practice, save economically costly exceptions, the oxalate solution is enclosed in a breakable glass ampule. Unfortunately, it is not possible to continuously manufacture, starting from material in roll form, elements with glass ampules. Moreover, they are expensive.- -

At page 1, the paragraph beginning at line 18, amend as follows: - -

The present invention relates to an element suitable for such a continuous manufacture, thus very economical, and what is more, made with materials that are

inexpensive. The element has, furthermore, the advantage of being flat, of being particularly light, as well as other auxilliary advantages which will appear in the following description.- -

At page 3, the paragraph beginning at line 3, amend as follows: - -

The inner pouch 1 is made of two aluminum foils 2 and 3, sealed together along their rectangular periphery 4, as shown in the Fig. 1 and 2, and circular in the Fig. 3 and 4.- -

At page 3, the paragraph beginning at line 6, amend as follows: - -

It contains the oxalate liquid chemical solution, of which the level is shown as 5. The outer pouch 6 is made of two films 7 and 8, of translucent soft polymer, preferably polyolefin, for instance polyethylene or polypropylene, sealed along rectangular periphery 9, in Fig. 1 and 2, and circular in Fig. 3 and 4. It contains the activator liquid of which the level is shown as 10.- -

At page 3, the paragraph beginning at line 13, amend as follows: - -

The device involves, optionally, a steel ball 11 or a hard particle on which the user will push in order to pierce the aluminum pouch and so induce the mixing process. It can also be conceived that this ball or particle be omitted and that the pouch will burst by pressure. In that case, it is suitable to foresee an area of weakened resistance, for instance a welding line. Each of the two aluminum foils is lined, by coating, laminating, or other technique, by a coat of polymeric lacquer, on this one of their surfaces which is

to be faced to the corresponding one. This lacquer coat, preferably based on polypropylene, modified or not, is provided to ensure the adhesion of the two foils together by thermal sealing along their periphery. This coat is not represented on the drawings for reasons of clarity.- -

At page 4, the paragraph beginning at line 17, amend as follows: - -

The device involves also, optionally, a felt 12 made of nonwoven material of which the fibers are preferably from the same polymer as the films of the outer pouch. It will be attached between the two films by peripheral thermal sealing. During the storage of the lighting element before use, this felt will have time to absorb the whole of the activator liquid and spread it uniformly in the pouch. The result will be a good uniformity in emitted light after the liberation of the oxalate solution because the two chemical liquids diffuse into each other within a short time. The level of activator liquid 10 in Fig. 2, is shown at the time of filling; later, it will be absorbed in the felt as said above. - -

In the Claims:

1. A chemiluminescent lighting element, comprising at least two closed chambers, one housed within the other and filled respectively with an oxalate solution and an activator solution, said oxalate solution enclosed in a pouch, said pouch made of thin metal foil, said pouch being one chamber, another larger pouch made of translucent polymeric film containing said activator solution constituting said other chamber whereby bursting of said one pouch initiates chemiluminescent light and said metal foil reflects said light.

ADD NEW CLAIMS

13. A chemiluminescent lighting element of claim 1 further comprising said metal foil being aluminum.

14. A chemiluminescent lighting element of claim 1 further comprising a nonwoven material in said other chamber, said activator solution absorbed in said nonwoven material whereby said chemiluminescent light takes the form of said nonwoven material.

15. A chemiluminescent lighting element of claim 14 further comprising a peripheral seal enclosing said larger pouch, said nonwoven material attached to said larger pouch by said peripheral seal.

16. A chemiluminescent lighting element of claim 15 further comprising said nonwoven material in the form of a felt, said felt constructed of a polymeric material.

17. A chemiluminescent lighting element of claim 1 further comprising a hard particle located in said other chamber for piercing said metal foil.

18. A chemiluminescent lighting element of claim 17 further comprising said hard particle being a steel ball.

19. A chemiluminescent lighting element of claim 1 further comprising a soft polymer layer in said metal pouch.

ABSTRACT

A container for a chemiluminescent lighting element is made of two pouches, one disposed within the other, with the pouches containing an oxalate and an activator, respectively. The inner pouch, holding the oxalate, is made of a gas tight foil, such as aluminum, and the outer pouch holding the activator is made of a translucent polymeric film. The inner pouch is ruptured to mix the oxalate and the activator and initiate the chemiluminescent light which may be further reflected if the pouch is made of aluminum foil. The outer pouch may have a shaped nonwoven material inside in which the activator is absorbed so that the chemiluminescent light may project the shape.

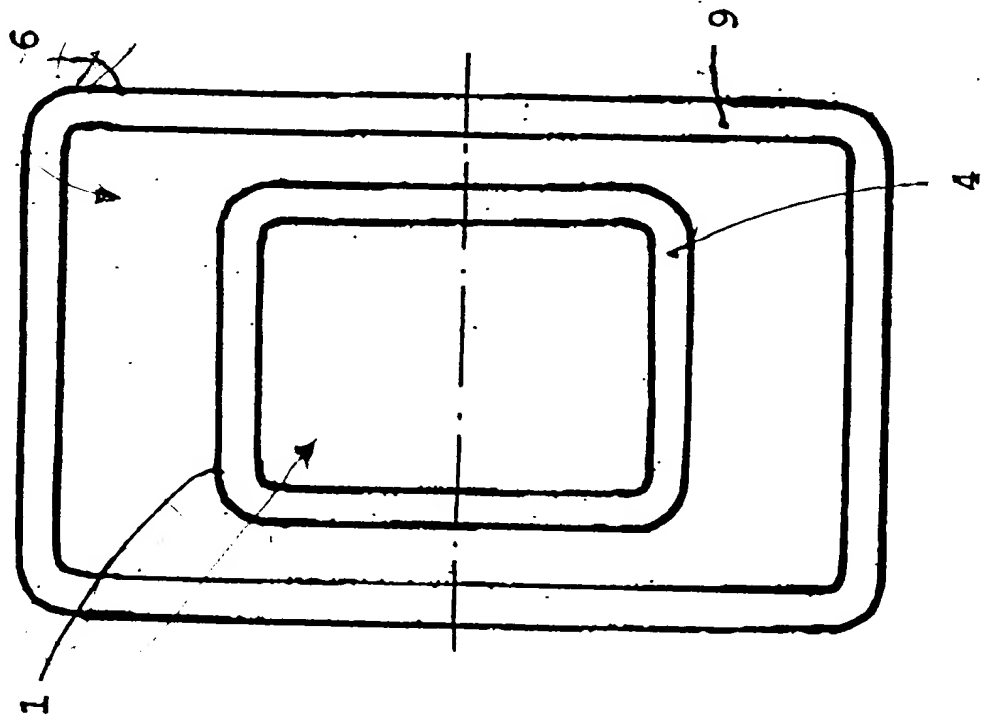


FIG. 1

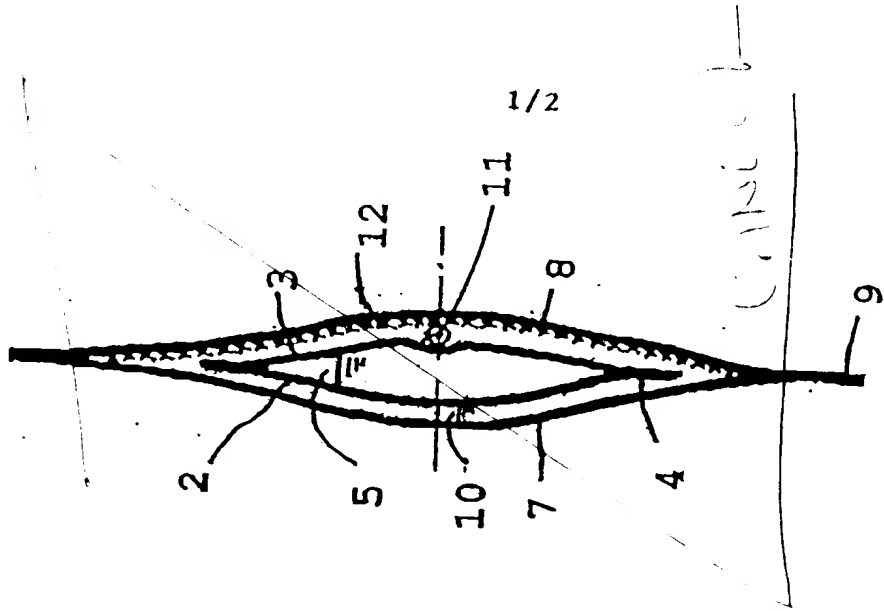


FIG. 2

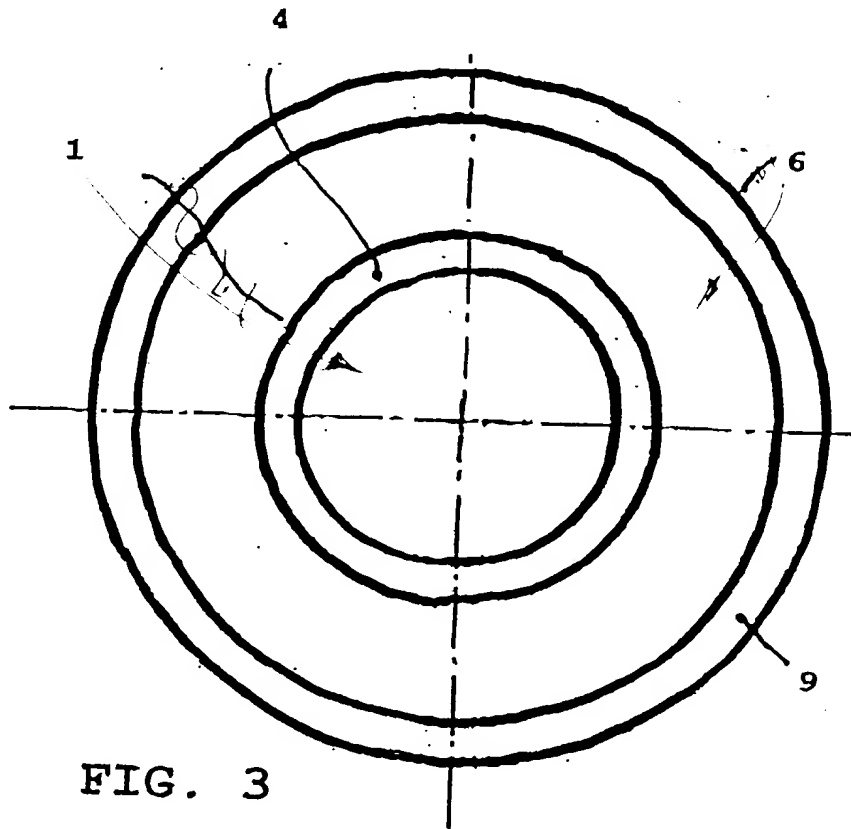


FIG. 3

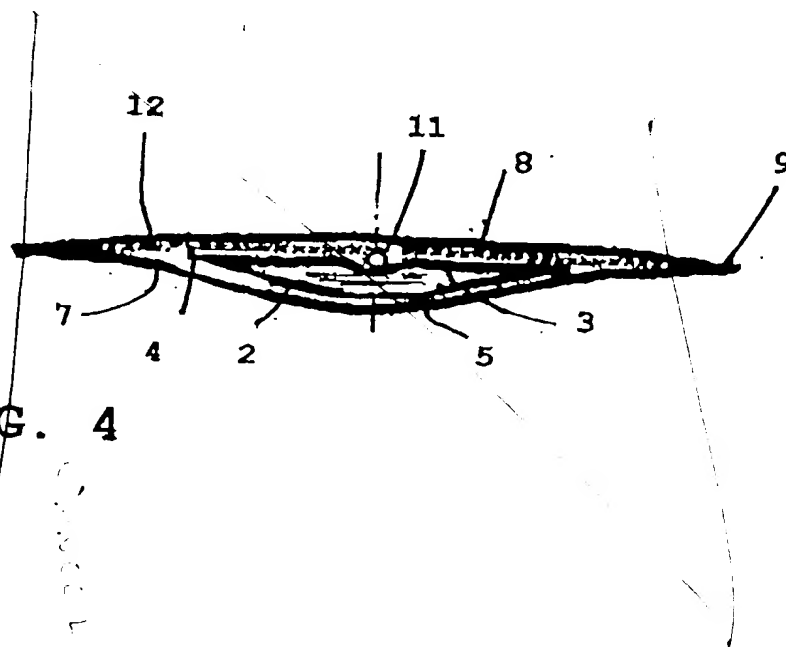


FIG. 4

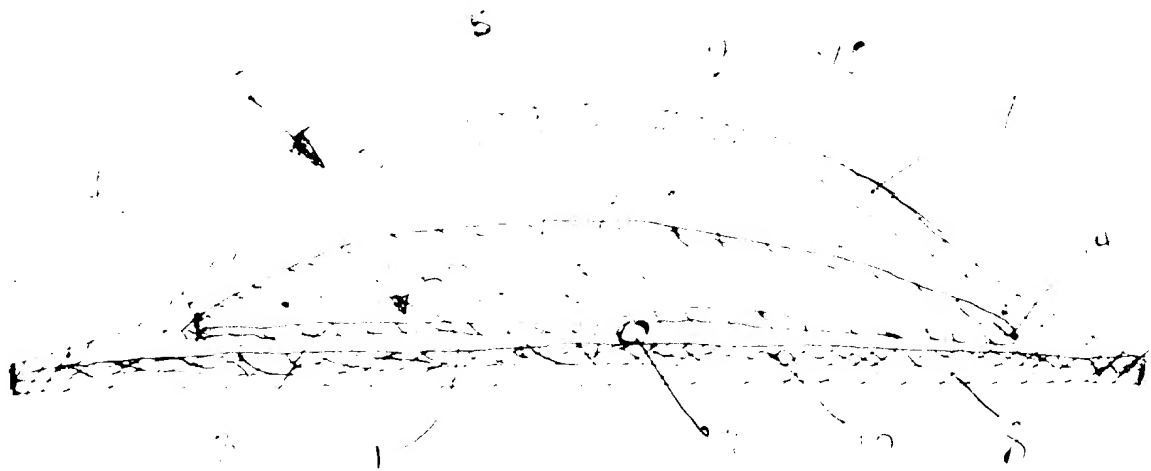


FIG. 4

FIG. 5

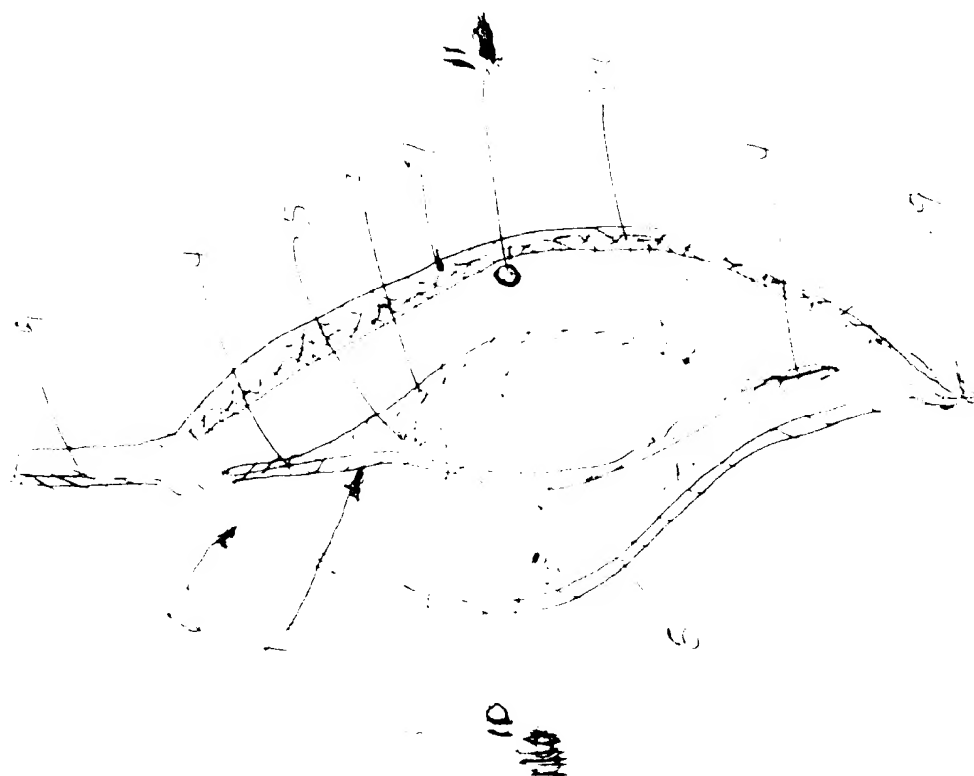


Fig. 100-10000